

# START

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## MEETING MINUTES

Subject: 100 AREA EXPOSURE SCENARIOS FOR QUALITATIVE RISK ASSESSMENTS

TO: M. J. Lauterbach MSIN: H6-01

FROM: S. W. Clark CHAIRMAN: E. D. Goller

Department	Meeting Date	Number Attending
Environmental Engineering	12/2/92	21

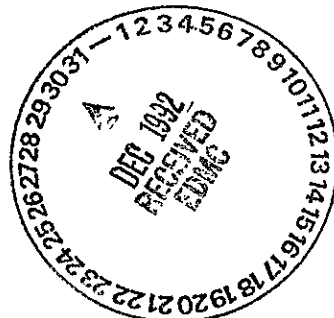
### Participants\*:

Eric Goller	DOE-RL-ERD	509-376-7326
K. Michael Thompson	DOE-RL-TPA	509-376-7326
Lonie Swenson	Golder Associates	206-883-0777
Warren Cohen	SAIC	509-943-3313
Paul Beaver	EPA	509-376-8665
Dennis Faulk	EPA	509-376-8631
Larry Gadbois	EPA	509-376-9884
Audree DeAngeles	PRC	206-624-2692
Sandi Stubecki	PRC	206-624-2692
Neil Morton	PRC	206-624-2692
Robert Henckel	WHC	509-376-1513
Roberta Day	WHC	509-376-7602
Alan Krug	WHC	509-376-5634
Harold Lachmann	WHC	509-376-1143
Steve Clark	WHC	509-376-1513
Steve Weiss	WHC	509-376-1683
Steve Friant	PNL	509-376-9799
Steve Cross	WA Dept. of Ecology	206-459-6675
Jack Donnelly	WA Dept. of Ecology	509-546-4313
Jeff Phillips	WA Dept. of Ecology	509-546-2968
Ted Wooly	WA Dept. of Ecology	509-546-2968

### \*Organizations:

DOE-RL: U.S. Department of Energy Richland Field Office  
DOE-RL-ERD: DOE-RL Environmental Restoration Division  
DOE-RL-TPA: DOE-RL Tri-Party Agreement Office  
EPA: U.S. Environmental Protection Agency  
PRC: Planning Research Corporation  
PNL: Battelle Pacific Northwest Laboratories  
SAIC: Science Applications International Corp.  
WHC: Westinghouse Hanford Company

(See page 2 for Summary of meeting minutes)



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Summary:

The 100 Area Tri-Party Agreement Unit Managers and the interagency Risk Assessment Committee (RAC) met in the EPA Hanford Project Office conference room on December 2, 1992, and agreed upon exposure scenarios for performance of qualitative risk assessments at priority waste sites in the 100 Area Operable Units.

1. Qualitative Risk Assessments for the 100 Area will utilize data in recreational and residential human health exposure scenarios in the current time frame. Current data, historical data, and process knowledge, as available, will be used to represent risk under current contaminant conditions.
2. The following exposure pathways for source operable units will be evaluated for qualitative risk assessments:
  - Ingestion of soil (chem. & rad.)
  - Inhalation of fugitive dust (chem. & rad.)
  - Inhalation of volatiles (chem.)
  - External radiation exposure
  - Contaminant specific pathways, as necessary
3. The following exposure pathways for groundwater operable units will be evaluated for qualitative risk assessments:
  - Ingestion of groundwater (chem. & rad.)
  - Inhalation of volatiles (chem.)
  - Contaminant specific pathways, as necessary
4. The schedule to be met for 100 Area qualitative risk assessments was agreed upon as follows:
  - o December 21 @ 9 AM in the EPA conference room:
    - Example of qualitative risk assessments for (1) a waste site with substantial data and (2) a waste site with little data.
    - Mockup of Revision 2 of the HSB RAM and Draft comment resolutions on Revision 1 of the HSB RAM.
  - o February 1, 1993 - Draft qualitative risk assessments for source operable units to DOE-RL and WHC for review.
  - o February 15, 1993 - Draft qualitative risk assessments for groundwater operable units to DOE-RL and WHC for review.
  - o March 1, 1993 - Qualitative risk assessments for source operable units to EPA and Ecology (secondary documents).

Discussion:

Tables of proposed exposure scenarios for qualitative risk assessments for 100-BC-1, 100-DR-1, and 100-HR-1 source operable units and the 100-BC-5 groundwater operable unit had been sent to all parties for review prior to the meeting. Eric Goller (RL) emphasized that these were intended to present a starting point. Jeff Phillips (Ecology) and Dennis Faulk (EPA) stated that they wanted to come to agreement on exposure scenarios during this meeting.

Lonie Swenson (GAI) noted the need for consistency between operable units in the 100 Areas which was incorporated into the RI/FS work plans and should be continued in all of the publications during the RI/FS process. The products of the qualitative risk assessments must be agreeable to the parties which must use them and be a tool that Tri-Party Agreement project managers can work with. In theory, for an interim remedial measure (IRM) to be initiated under the past practices strategy for the 100 Areas if any evaluation of the contamination at a waste site shows a risk no further evaluation is necessary. However, risk managers may require evaluation of specific exposure scenarios to assist in prioritization for potential cleanups. Exposure scenarios presented in the tables were based upon recommendations being drafted by the Hanford Future Site Uses Working Group.

Dennis Faulk stated that the regulatory agencies need an upper and lower bounds evaluation of qualitative risk to assist in risk management and prioritization of potential cleanups. Mike Thompson was concerned that sufficient data may not be available to perform the evaluations the regulatory agencies seek. Dennis Faulk stated that he wanted to see the data from Dorian & Richards used in the qualitative risk assessments. Lonie Swenson noted that no information at all is available for many waste sites. Mike Thompson noted that if we look at the worst spot at a waste site and find nothing we should look at putting it on the shelf for later evaluation.

Audree DeAngelos noted that evaluation of industrial and residential exposure scenarios are traditional for waste sites. The recreational and agricultural exposure scenarios were added for the Hanford Site. Agricultural is the most restrictive scenario, assuming that a farm family resides on a site and eats produce grown on the site. Lonie Swenson stated that evaluation of an agricultural scenario for qualitative risk assessment would involve modelling of too many pathways. Audree DeAngelos agreed that all of the additional factors of an agricultural exposure scenario are not necessary for a qualitative risk assessment.

Eric Goller stated that the group needs to define an acceptable approach for qualitative risk assessment based on conservatism. Bob Henckel suggested picking bounding scenarios and times, performing qualitative risk assessments for example sites and getting the group back together before the Christmas holidays to discuss what we have. Lonie Swenson noted that 100-BC-1 has considerable data available. We could pick 100-BC-1 and perhaps a site with little data, go through the qualitative risk assessment process and meet again to find if the expectations of the regulatory agencies are being met.

Dennis Faulk stated that bounding exposure scenarios of recreational and residential use made sense. If these are evaluated in a qualitative risk assessment and you come up with nothing you would wait until the baseline risk assessment was performed before further consideration of site risk. Audree DeAngelos noted that qualitative and quantitative (baseline) risk assessments are at opposite ends of a continuum. Exposure scenarios must be discussed when a qualitative risk assessment is done and discussed anew when the baseline risk assessment is done. Mike Thompson suggested starting with the most obvious contaminated sites for evaluation and doing the least necessary for justification of an IRM if you determine cleanup is necessary. He noted that the Hanford Reach EIS seeks to make the Columbia River area a recreational area with only certification that the area is clean enough for wildlife.

Eric Goller asked if it would not be appropriate to only evaluate the residential exposure scenario so all waste sites are evaluated against the same criteria. Mike Thompson answered that it is most logical to proceed in a stepwise fashion to evaluate the risk at a site. The first step of evaluation should be the "giggle test," e.g., is a site so obviously contaminated that it must be cleaned up. If it is not obvious that contamination at a site requires cleanup the recreational exposure scenario should be evaluated because of the recommendations of the Hanford Reach EIS and the Hanford Future Site Uses Working Group. If the risk in a recreational scenario does not merit cleanup a residential exposure scenario should be evaluated.

Steve Cross was concerned that the risk due to eating game animals in a recreational scenario should be evaluated. Mike Thompson stated that sampling of vegetation and biota with consideration of complicated exposure pathways belonged in quantitative (baseline) risk assessments. After discussion Steve Cross agreed that if consumption of game animals would cause a risk to be shown in the recreational exposure scenario then evaluation of the residential exposure scenario would surely show a risk.

Eric Goller noted that agreement had been reached to do qualitative risk assessments based on recreational and residential exposure scenarios. He was concerned as to how DOE-HQ may view evaluation of a residential exposure scenario in the 100 Areas where residential land use is not envisioned. It was noted that budgeting for federal facilities is now risk based. Hence, evaluation of a residential exposure scenario where residences do not exist or are anticipated could be regarded as excessive.

Agreements on exposure scenarios for performance of qualitative risk assessments for priority waste sites in the 100 Areas were summarized by Eric Goller (see Meeting Minutes Summary). For each waste site recreational and residential exposure scenarios will be evaluated for agreed upon pathways using current data in the present time frame. It is agreed that it is not necessary to evaluate future time periods for performance of qualitative risk assessments since the only purpose is to provide additional information to the risk managers who must determine if interim remedial measures are appropriate to expedite cleanup.

The operable unit managers will meet again on December 21, 1992, at 9 AM in the EPA Hanford Project Office conference room for a presentation of what is being done on qualitative risk assessment. Materials will be FAXed on Dec. 18 for review prior to the meeting. For the qualitative risk assessment presentation Lonie Swenson will pick a waste site on 100-BC-1 where there is historical and current data and a site elsewhere where there is no data. For groundwater operable units Lonie will first screen for risk using groundwater analyses from the monitoring wells. If contaminants are moving to the Columbia River, and screening shows it to be needed, simplified groundwater modelling will be done. Factors for radioactive decay will be applied to historical data if information is available to do that. Lonie will determine if what was historically expected to be at a site should still be there.

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The qualitative risk assessment reports are to note that total risk of the waste sites is not presented. That is, the effects of groundwater and other mobile media will not be included in the risk determined for the source operable units. Presentation of total risk will be appropriate for the baseline risk assessments to be performed on an operable unit or aggregate area basis.

The ecological portion of the qualitative risk assessments for the 100 Area operable units was discussed by Steve Friant of PNL. Steve proposes to do only what number crunching is necessary to support some kind of decision. The ecological portion of the qualitative risk assessments will tell where you are in the process and see if there is a likelihood of impact. What data is available now is driven by human pathways so it takes some extrapolation. Qualitative risk assessments for ecological receptors to support the IRM approach to cleanup will be produced for the same sites in the same time frame as the human health qualitative risk assessments. The question is what is best from an ecological point of views to support the IRM approach. What is being proposed is to look for the most sensitive ecological receptors to see what is likely to be affected. Look for (a) contaminant movement and (b) what receptors may be affected. The Swainson's hawk and threatened and endangered species in the 100 Areas will be discussed in the qualitative risk assessments.

Larry Gadbois sees "possibly affected species" at lower trophic levels as being on one end of a continuum with "threatened and endangered species" (which would possibly drive budgetting for cleanup) at the other. Steve Friant handed out a food web of terrestrial organisms (typical of what will be presented in the qualitative risk assessments) to demonstrate the complexity of what must be considered for even a qualitative ecological risk assessment. Steve will make a presentation of what has been developed for the ecological portion of qualitative risk assessment in the meeting on December 21, 1992.

# CORRESPONDENCE DISTRIBUTION COVERSHEET

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Subject: 100 AREA EXPOSURE SCENARIOS FOR QUALITATIVE RISK ASSESSMENTS;  
RISK ASSESSMENT COMMITTEE MEETING - DECEMBER 2, 1992

## INTERNAL DISTRIBUTION

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		H. P. Lachmann	H6-01	
		M. J. Lauterbach	H6-01	
		N. K. Lane	H6-01	
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